MEMORANDUM

TO: Members, Clark Fork Basin Water Management Task Force (Task Force)
FROM: Gerald Mueller
SUBJECT: Summary of the May 1, 2006 Task Force Meeting
DATE: May 3, 2006

Participants

The following people participated in the Task Force meeting:

Task Force Members:

Harvey Hackett	Bitterroot Water Forum
Bill Slack	Flathead Joint Board of Control
Fred Lurie	Blackfoot Challenge
Matt Clifford	Clark Fork Coalition
Jim Dinsmore	Upper Clark Fork Steering Committee/Granite Conservation District
Nate Hall	Avista
Holly Franz	PPL Montana, LLC
Marc M. Spratt	Flathead Conservation District/Flathead Chamber of Commerce

Staff:

Gerald Mueller	Consensus Associates
Mike McLane (DNRC)	Montana Department of Natural Resources and Conservation

Other:

Phil Tourangeau	Confederated Salish and Kootenai Tribes (CSK&T)

Meeting Agenda

- HJR 3 Update
- Trout Unlimited Vs. DNRC Supreme Court Decision
- DNRC Ground Water-Surface Water Working Group Update
- Ground Water Conferences
- Public Comment
- Schedule meeting

HJR 3 Update

Gerald Mueller reported that he had spoken with Hal Harper, Governor Schweitzer's chief policy advisor about activities to implement HJR 3, the Hungry Horse resolution. Mr. Harper stated that he had visited with the Confederated Salish and Kootenai Tribes Chief Legal Council, John Carter, who indicated a willingness to consider a joint state-tribal approach to the Bureau of Reclamation to determine the process that would be followed if the state requests a contract for Hungry Horse water. Mr. Harper also asked about the state's rational for obtaining such a contract. Mike McLane stated that two dates have been identified for a meeting between state and tribal officials concerning Hungry Horse, either May 3 or May 23. He indicated that the May 3 date appears unlikely based on Mary Sexton's schedule. The Task Force agreed that Gerald Mueller and Mike McLane should draft an initial version of the rational for the state

contracts for Hungry Horse water based on the water availability in the basin, the purposes stated in the Hungry Horse project authorization, and the BOR water right filings. Concerning water availability, individual Task Force members noted that the CSK&T's most senior water right will likely affect water availability above the reservation, and Avista's objection to the Thompson Falls generation project's application for Clark Fork River water may have the effect of closing the entire basin to new surface water right permits. The recent Montana decision that will be discussed below may also mean that most ground water is also closed. The Task Force further agreed that its members and staff should continue to press for action to implement HJR 3.

Jack Stults was unable to attend today's meeting to discuss the possible need for a formal four state water quantity entity. He and his counter parts from Idaho, Oregon, and Washington will meet in either late May or early June to discuss the Washington effort to appropriate additional water from the Columbia River. He remains willing to meet with the Task Force to discuss the results of this meeting and a formal four state water quantity body.

Trout Unlimited Vs. DNRC Supreme Court Decision

Holly Franz reviewed the history and the significance of the recent Montana Supreme Court decision in Trout Unlimited et. al. Vs. DNRC et. al. In 1993, the legislature closed the upper Missouri River basin, including the Smith River, to most surface water permits and to ground water immediately and directly connected to surface water. Ground water not so connected was exempted from the closure. The availability of federal Environmental Quality Incentive Program funds from NRCS led farmers and ranchers in the Smith River drainage to install eighteen center pivots using water from new wells. These systems were installed before applications were made for ground water right permits. To decide whether the new wells were immediately and directly connected to the Smith River, DNRC applied what is commonly called the "cone of depression" test. Using this test, DNRC finds a "direct and immediate" connection between surface and ground water if a surface water source is within the cone of depression of the new well. DNRC began processing the permits for the eighteen new projects independently. Montana Trout Unlimited (TU) objected to DNRC's independent approach and asked the department to determine the cumulative impacts of the new wells on the Smith River. The DNRC did the cumulative analysis in an environmental assessment (EA). Although the EA found that the flow of the Smith River would be reduced by the new wells, based on the cone of depression test, DNRC continued the permit process for them. TU et. al. sued in district court to stop the permitting, and when the district court found in favor of DNRC, TU appealed to the Supreme Court. In its ruling, the district court deferred to the agency's discretion in determining the appropriate test for immediate and direct connection between surface and ground water. It also found that TU et. al. must exhaust their administrative remedies by participating in the permitting process before filing appealing DNRC's permit actions. The Supreme Court reversed the district court in both the definition of the immediate and direct connection test and when TU et. al. might seek court action to reverse the DNRC decision. The found that the legislature had directed that the DNRC must not process permits if it found the proposed well to be immediately and directly connected to surface water. It further found that the test for connection must include both "induced streambed infiltration," i.e., cone of depression test, and ground water capture, i.e., ground water tributary flow within the hydraulic gradient of the stream. Ms. Franz stated that this ruling probably would prevent DNRC from processing ground water permit applications for the development of alluvial aquifers in the basins with the immediate and direct language in their basin closure. These basins include the Teton, the upper Missouri, the Jefferson, and Madison River basins. She noted that the upper Clark Fork closure includes a different test for surface and ground water connection. This closure exempts ground water that is "...not a part of or substantially or directly connected to surface water" (85-2-337 MCA). However, the statutory reference to "directly connected" probably means that the ground water capture test applies, which may close ground water in alluvial aquifers in the upper Clark Fork. The Supreme Court decision may also affect ground water development in basins not closed. New ground water

developments in unclosed basins must demonstrate that they would not adversely affect existing water rights. DNRC will likely apply both the ground water capture and induced streambed infiltration tests to determine adverse affects.

DNRC Surface and Ground Water Working Group Recommendations

Mike McLane stated that the Working Group meets tomorrow and will consider the implications of the TU vs. DNRC Supreme Court decision to its recommendations. The Working Group may have more impetus to recommend deleting the "immediate and direct" or "part of or substantially or directly connected" language from all basin closures in return for an augmentation requirement. Mr. McLane noted that the Supreme Court decision may also tend to increase the use of the 35 gpm/10 acre feet per year exemption for new wells from the permitting process. Subdividers may have additional incentive to avoid installing community wells. The Working Group had already agreed that it could not reach agreement about changing this exemption, but Mary Sexton may ask the Working Group or another group to pursue amendment to this exemption.

Ground Water Conferences

Conference Funding - Gerald Mueller reported that DNRC has apparently allocated about $25,000 to the Task Force for the following: the ground water technical and policy conferences, the pre-technical conference white paper, administrative support, and the Hungry Horse negotiations. Mike McLane stated that the specific breakdown of these funds is not clear; however, they must be committed prior to June 30, 2006. He must contract with either the Task Force Facilitator or some other entity such as a conservation district to act as the fiscal agent for and carry out one or more of these tasks.

McLane Memo - Mike McLane prepared and Mr. Mueller circulated to the Task Force via email prior to today's meeting, a memo discussing the structure and arrangements for the two conferences. His memo is attached below in Appendix 1. After discussing this memo, the Task Force agreed to the points noted below.

Technical Conference - The Force will continue to plan to hold the technical conference in association with the River Center conference in September. The technical conference would be one day on Wednesday, September 27, 2006. It will focus on the following questions:

- What do we know about the Basin's ground water and its interaction with surface water at a sub-basin scale?
- What do we need to know and how do we acquire that information?
- What tools and methodologies are available to manage ground water, accounting for surface and ground water interactions, at the sub-basin scale?

The Task Force also agreed to continue to pursue preparation of some sort of readable document summarizing the available information about basin ground water on a sub-basin scale.

The tentative agenda for the conference is as follows:

- Montana Bureau of Mines and Geology presentation summarizing available ground water information by sub-basin;
- Presentation(s) on the modeling tools that can define and/or predict the nature and extent of surface and ground water connections on a sub-basin scale;
- Presentation(s) on the methodologies used to assess surface and/or depletions ground water depletions from ground water appropriations;
- Other information, tools, and methodologies needed to manage ground water effectively and where or how they can be acquired.

- Next steps.

Policy Conference - The previous draft summary statement of the policy conference had the first of three phases consisting of a presentation by Dr. Larry Swanson of present and future basin population levels and economic activity to be followed by a DNRC prediction of the water use associated with those levels and that activity. Because of a concern that DNRC lacks the capability to make such a prediction, the Task Force suggested instead that Dr. Swanson's presentation be followed by discussions of the water use that resulted from rapid growth in Colorado and Idaho. Also an additional panel addressing policy and administrative tools for allocating water while protecting surface water was added to phase three of the conference. Finally, this conference will be held in the November 8 -17, 2006 period.

Next Steps - The Task Force agreed that:
- Mr. Mueller will revise the conference summary paper;
- Mr. Mueller will discuss the technical conference agenda with Dr. William Woessner with the UM River Center;
- Mr. Mueller will contract Dr. David Shively to see if the UM Geography Department would be a partner in convening the policy conference;
- Mr. McLane will confirm the details of the additional DNRC funding for the Task Force; and
- Mr. McLane will arrange a meeting with Tom Patton and/or Marvin Miller at the Bureau of Mines and Geology to discuss the technical conference white paper.

Public Comment
There was no additional comment.

Next Meeting
The next meeting scheduled for the first Monday in June, June 5 in.

Appendix 1

To: Marc Spratt and Gerald Mueller
From: Mike McLane
CC: Task Force
Topic: Conferences
Date: 3/3/06

In this memo I will:

- Provide a long overdue answer to Gerald's question related to duplication of symposia;
- Raise questions bout the inter-relatedness of the Task Force agenda and theme of the Technical Conference; and finally
- Provide some suggestions that might maximize these opportunities.

As background, the Task Force has two activities in its work plan addressing ground water in Clark Fork. One is a policy round table with an invited basin audience. The other is a technical conference in the fall of 2006, to be held in conjunction with the River Center.

Policy Conference:

The Clark Fork Basin's policy conference will have a targeted audience including local, regional and tribal leaders, primarily from within the basin. The agenda will investigate: a) basin growth and projected growth, b) assessment by local governments of their current water supply and plans for future supply; and c) the water allocation and water supply options and alternatives in the basin.

To directly answer Gerald question about conference duplication, I do not think a Task Force "round table" will replicate the Northwest Water Policy and Law Symposium (September 18 & 19) or the River Center fall conference (Thursday Sept 21st and Friday the 22nd). The same is true for the other two water conferences that will be conducted in Western Montana this year.[1]

The Task Force round table plans to have focused, basin specific agenda that will engage basin leadership in a dialog about current and future water supply and demand. I would hope that the Task Force will be able collect and synthesize the comments from the participants as an aid to future planning efforts and to aid future water supply activities.

The round table might be enhanced and participants might be more prepared if we can:

- Encourage basin leadership to attend the other conferences too, or
- Capture and summarize key messages from the other gatherings, and then

[1] The National American Water Resources Association (AWRA) is hosting a summer specialty conference in Missoula, June 26 – 28, titled, "*Adaptive Management of Water Resources*". The Montana Section of AWRA is hosting their annual file meeting October 12 and 13, in Polson, MT. Their working title appears to be "*Montana's Lakes and Wetlands, Improving Links to Integrated Water Resource Management*".

- Conduct the Clark Fork Task Force Conference's Policy Conference later in the year.

Technical Meeting:

At this point, the Task Force is looking at a technical conference targeted on the following questions:

- What do we know about the Basin's ground water and its interaction with surface water?
- What do we need to know?
- How do we acquire that information?

After visiting with Gerald, the River Center's 2006 Conference, "*Floodplains and Rivers - Connections and Reconnections*" will focus on the effectiveness of stream and stream side restoration efforts in 'recreating' functional systems.[2]

The Center is likely to have a better sense of "cutting edge" technical / scientific investigations or critiques related to the integrated management of surface and ground water. Working with the River Center will result in advantages in rooms, publication and audience. However, I do not see a strong correlation between what the Task Force has outlined as a "need" and what the Center has outlined as a theme. Further our discussions have included the creation of a "white paper" that acts as a summary of the basin's water resources.

Perhaps we should rethink our conference approach considering that:

- We do not have the funds for the white paper,
- A similar but less detailed document was developed by the USGS in 1996,[3] and
- Our conference sponsor has developed a slightly different theme,

If the Task Force, in an adjacent section that might precede the main conference (after noon and evening of September 20) built upon the theme of connections and reconnections, we could attain a mutually beneficial activity. Maybe we should host a series of presentations that address the connection of ground water to rivers and flood plains (surface water). Through presentations by invited speakers, we could look at the scientific and technical aspects of managing ground water where it is a connected resource or where the depletions from new ground water appropriations are being mitigated. For example, it would be helpful to examine:

- Tools (models, processes or management activities) to define the nature and extent of the interconnectedness and to predict relationships,
- Methods of assessing depletions resulting from ground water appropriations.

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[2] Past River Center Conference's include: *Floodplains and Rivers: Connections and Re-Connections*, Sept 22 & 23, 2005, *Assessing and Re-naturalizing Streams Impacted by Dams and Dam Removal*, Sept 23 & 24 2004, "*Assessing and Re-naturalizing Streams impacted by Mining*", Sept. 25 & 26, 2003

[3] "Geographic, Geologic and Hydrologic Summaries of Intermountain Basins of the Northern Rocky Mountains, Montana, USGS, Water Resources Investigation report 96-4025, Kendy and Tresch, August 1996, Helena MT

- Policy and administrative tools for allocating ground water while protecting surface water conditions (i.e. augmentation, ground water storage, water banking, water trades etc.), and
- How current management assesses, protects, or enhances surface water resource uses and values.

This examination could be enhanced by looking at what other states are doing and what information they needed for management and analysis. Many of our neighboring states are all ready being asked to manage surface and ground water as connected resources. We could benefit from looking at current research, modeling and other regional efforts integrate management. This might allow us to "barrow or steal tools" as well as to prioritize areas of concern and data collection.

Attachment

To encourage additional discussion attached are several references to work being done in other westerns states. These are titles or authors located on the web and some authors recommended by my co-workers.

Idaho:

- *Snake River Basin Surface Water-Ground Water Interaction*, Dr. Gary Johnson, Donna Cosgrove and Mark Lovell, Idaho Water Resource Research Institute, University of Idaho, December 1998. http://www.if.uidaho.edu/~johnson/ifiwrri/sr3/home.html
- Phase II Evaluation of Managed Recharge on the Eastern Snake River Plain Development of Recharge Facilities, David Blew, Id Dept. Water Resources
- Procedures for Estimating Depletion in the Lower Bear River Basin In Idaho, Robert Hill P.E. PhD. Logan Utah, January 27, 2003.

Washington / Idaho

- Both Idaho and Washington are looking at the Rathdrum Spokane Aquifer and studying characteristics of that unit. (Interestingly Washington clearly identifies issues with reduced recharge to streams in their introduction to a Spokane Valley Rathdrum.) Idaho Water Resources link http://www.idwr.idaho.gov/hydrologic/projects/svrp/
- Caldwell, R.R., and Bowers, C.L., 2003, Surface-water/ground-water interaction of the Spokane River and the Spokane Valley/Rathdrum Prairie Aquifer, Idaho and Washington: U.S. Geological Survey Water-Resources Investigations Report 03-4239, 60 p.
- Kahle, S.C., Harrington, H., and Gregory, G., 2005, Hydrologic investigation and ground-water flow model of the Rathdrum-Spokane Aquifer, Kootenai County, Idaho and Spokane County, Washington [abs.]: 5th Washington Hydrogeology Symposium, Tacoma, Washington, April 12-14, 2005, Program, p. 101. (PDF, 2.13 MB)

Kansas:

- Kansas Geological Survey – Stream Aguifer Interactions web page http://www.kgs.ku.edu/StreamAq/index.html
  a) Butler, J.J., Jr., Zlotnik, V.A., and Tsou, M.S., Drawdown and stream depletion produced by pumping in the vicinity of a partially penetrating stream, Ground Water, v. 39, no. 5, p. 651-659. **(Abstract)**
  b) Evaluation of Stream Depletion Considering Finite Stream Width, Shallow Penetration, and Properties of Streambed Sediments by Vitaly A. Zlotnik, Huihua Huang, and James J. Butler, Jr.
  c) Mathematical Derivation of Drawdown and Stream Depletion Produced by Pumping in the Vicinity of a Finite-Width Stream of Shallow Penetration by James J. Butler, Jr., and Ming-Shu Tsou
- Computer Software:
  a) A Web-Based Program for Computation of Pumping-Induced Drawdown and Stream Depletion

b) The StrpStrm model for calculation of pumping-induced drawdown and stream depletion--An executable program to download and sample data.

- Sophocleous, M.A., 2003. Environmental implications of intensive groundwater use with special regard to streams and wetlands. In: E. Custodian and R. Llamas (eds.), Groundwater Intensive Use: Challenges and Opportunities. A.A. Balkema Publishers, Lisse, The Netherlands, p. 93-112.
- Sophocleous, M.A., 1998. On the elusive concept of safe yield and the response of interconnected stream-aquifer systems to development. In: Sophocleous, M.A. (ed.). Perspectives on Sustainable Development of Water Resources in Kansas. Kansas Geological Survey, Bulletin 239, p. 6-85.
- Sophocleous, M.A., 2004. Groundwater recharge and sustainability in the High Plains aquifer in Kansas, USA. Hydrogeology Journal, in press.
- Sophocleous, M.A., 2004. Hydro-ecological principles for sustainable water resources management. 2004 NGWA Ground Water Expo, Las Vegas, Nevada
- Sophocleous, M.A., 2003. Environmental consequences of groundwater overexploitation: the hydrologic fundamentals. In: Wang, Y. (ed.), Proceedings of the International Symposium on Water Resources and the Urban Environment, 9-10 November 2003, Wuhan, P. R. China, China Environmental Science Press, p. 25-29.
- *Sophocleous, M.A., 2002. Interactions between groundwater and surface water: The state of the science. Hydrogeology Journal, 10(1): 52-67.
- Ramireddygari, S. R., Koelliker, J.K., Tracy, J.C., and Sophocleous, M.A., 1998. Decision Support System (DSS) for basin-wide water resources management. Proceedings, ASCE International Water Resources Engineering Conference, Memphis, TN, v.2, p.1787-1792

Colorado / Nebraska:

- Dick Wolfe, P.E., Colorado Division of Water Resources
  a) Running the River: Water Rights in the Marketplace: Law, Hydrology and Reality October 7, 2005
  b) Regulation of Well Pumping in the South Platte River Basin October 7, 2005,
  c) Surface Water and Ground Water Administration in Colorado, "Water 101" February 24, 2004
- Ground-Water Resources of the South Platte River Basin in Western Adams and Southwestern Weld Counties, Colorado,: Rex O. Smith; Paul A. Schneider Jr.; Lester R. Petri; GEOLOGICAL SURVEY WASHINGTON DC
- The Geological Society of America, 2002 Denver Annual Meeting Oct 27-30 2005, Denver CO. Selected presentations"
- HYDROGEOLOGIC INVESTIGATION INTO THE EFFECTS OF MANAGED RECHARGE ON WATER QUALITY, LOWER SOUTH PLATTE RIVER, CO: WATT, Jamey T., SANFORD, William E., and STEDNICK, John, Earth Resources, Colorado State Univ, Fort Collins, CO 80523-1482, jameywatt@yahoo.com
- COHYST – NEBRASKA'S DECISION SUPPORT SYSTEM FOR MEETING THE OBLIGATIONS OF THE PLATTE RIVER COOPERATIVE AGREEMENT: LEWIS, Gary L., Parsons, 1700 Broadway, Suite 900, Denver,

CO 80290, Gary.L.Lewis@Parsons.com, WOODWARD, Duane, Central Platte Nat Rscs District, Nebraska, 215 Kauffman Avenue, Grand Island, NE 68803, and KERN, Rich, Nebraska Department of Natural Resources, Lincoln, NE

- ESTIMATING GROUND-WATER DISCHARGE TO STREAMS FOR USE IN THE NEBRASKA COOPERATIVE HYDROLOGY STUDY (COHYST) MODEL CALIBRATION: LUCKEY, Richard R., U.S. Geol Survey, Denver Federal Center, Bldg. 53, Box 25046, M/S 406, Lakewood, CO 80225, rrluckey@usgs.gov, CARNEY, Clint P., Water Resources Division, Nebraska Public Power District, 402 E. Statefarm Rd, North Platte, NE 69101, PETERSON, Steven M., Central Nebraska Public Power and Irrigation District, P.O. Box 740, 415 Lincoln Street, Holdrege, NE 68949, and WOODWARD, Duane A., Central Platte Natural Resources District, 215 N. Kaufman Ave, Grand Island, NE 68803
- A COMPARISON BETWEEN STREAM DEPLETION LINES COMPUTED WITH GROUNDWATER-FLOW MODELS AND A CLASSIC ANALYTICAL METHOD FOR THE NEBRASKA COOPERATIVE HYDROLOGY STUDY: CARNEY, Clint P., Water Resources Division, Nebraska Public Power District, 402 E. Statefarm Rd, North Platte, NE 69101, cpcarne@nppd.com, LUCKEY, Richard R., U.S. Geol Survey, Denver Federal Center, Bldg. 53, Box 25046, M/S 406, Lakewood, CO 80225, PETERSON, Steven M., Central Nebraska Public Power and Irrigation District, P.O. Box 740, 415 Lincoln Street, Holdrege, NE 68949, and CANNIA, James C., North Platte Nat Rscs District, 1054 Rundell Rd, Gering Industrial Tract, Gering, NE 69341